

ABSTRACT

A human being presence detection system automatically determines the presence of human beings without directly attaching sensors to the human body and detects human drowsiness. The detection system characterizes the occupancy of a vehicle seat to determine the characteristics of deployment of vehicle airbags and restraints in the event of a crash/accident. In other applications, the presence of persons hiding in a predetermined space is detected, including caves, underground bunkers, tunnels, *etc.* The rescue of military personnel or of persons trapped under rubble, behind barriers, within building, *etc.*, is facilitated. In one embodiment, human beings are detected using data obtained from pressure transducers in the space of interest. The pressure signals are processed by a novel signal processing algorithm to determine the presence or absence of a human being, using information from different types of pressure transducers. In addition, the system can identify other characteristics of a human being, such as whether a vehicle seat occupant is normally seated or leaning, once it is determined that a human being occupies the seat.